

REMARKS

Very thanks for Examination's suggestion and thanks for finding the difference between process of making of Claim 1 to 15 and product made of original Claim 16 to 19. The applicant may know more information about the invention. This case has been carefully reviewed and analyzed in view of the office action.

Examiner has kindly provided two representative number of species implicit disclosed and make a rejection, to meet the description, the applicant would rather to elect the Claim 1 to 15 in the instant invention for examination, and at the same time, the applicant files in continuation in part patent application for the original Claim 16 to 19, as division from the original application.

The CIP application has no new matter than the original application.

Since the official action instructs that the PU resin can be instead of using an adhesive to apply a resin gel and a resin film and subsequent heating to cause adhesion. But there has some differences between the present invention and the prior arts such as USP 6105214 as following:

In the published specification of USP 6105214 assigned to Press, column 5 line 65 "A curing step may also be desired after laminating" and column 7 Line 24 "PU film may be cured", it seems the curing step is not absolutely needed. Even the curing step may cause "cross linking" effect has no further discussion.

In the prior art, column 4 line 58, inner surface or non-coated surface 18 of stringer tapes 14,16 may be treated with water repellent treatments such as fluorocarbon treatment. Refer to

Fig.1, film 26 is distinct from the surface 20. In other words, the film 26 is not permeated into the surface 20.

But, in column 6 line 48, the permeation of film material into the fibers of stringer tapes 14,16 as a soft inner layer incorporating a slip agent into the hard outer layer, it has multilayer. In column 7 line 37, water resistant polyurethane layer laminated thereto, with excellent adhesion to the stringer tape fabric.

In the prior art, the glued waterproof film is transferred to the backside of the fastener strip of the zipper after the waterproof film is coated with gel, or after a low hardness film is transferred to the fastener strip, it is coated on the backside of the fastener strip. But, in the present invention, the PU gel is adhered to the back surface of the fastener tape, when it is permeated into the back surface, and then, the PU film is transferred to the backside of the fastener strip. Then by heating, the PU gel and PU film are combined as a waterproof layer by thermal plastic stage. Therefore, in the present invention, the physical properties, such as adhesion of the single layer waterproof layer are improved so that the waterproof layer can be generated with pattern or texture. This can not be achieved by the prior art.

In the published specification of the present invention, p.1 [0009] a heating step is mentioned, p.1 [0010] a back surface of each fastener strip is permeated with PU gel; and then a PU film is adhered to the back surface by thermal plastic stage. It is the key point of the present invention.

Furthermore, in p.2 [0040] the PU gel includes PU adhesive and solvent. In p.2 [0041] the capillary is helpful to the addition

of the gel by pressing without increasing the thickness of the fastener strip 11,12. As mentioned above, a heating step is necessary, even in p.3 [0051] unglued zipper is preheated, so the solvent can be vaporized and the base material can be cross linking to a three dimensional net structure. And the base material of the stringer tapes is selected from such as di-thermal liquid bridging polyester urine resin (i. e., PU gel) mixed with bridging agent, it is kind of unsaturated polyester, kind of pre-polymer solidification under low pressure, and added with urine resin as bulking agent. Thus, the capillary of the PU gel and the solvent, before drying and heating, the molecules may be small, after cross-linking or bridging, molecules can become bigger. So they can be kept in the polyester base material. And it is unresolved.

In the USP 6105214, Claim 24 claimed: water resistant layer has an adhesion to said stringer tapes which is greater than the integral strength of said stringer tapes whereby said stringer tapes fail before separation of said water resistant layer from said stringer tapes.

In the present invention, the base material polymer (polyester polyhydric alcohol or acrylic acid polyhydric alcohol or micro inorganic stuff agent which is formed by bridging and hardening) is mentioned.

LIST OF CLAIMS:

Claim 1.(original) A method for manufacturing a waterproof zipper comprising steps of: (a) feeding a nylon zipper to a feeding device; (b) passing the nylon zipper to a gluing device and coating PU gel on backsides of the fastener strips of the nylon zipper; (c) adhering a PU film with PU gel on backsides of the fastener strips by using rollers to press the PU film so as to be formed as a waterproof layer; wherein the PU film is adhered on a release paper; (d) heating the PU film and PU gel to be formed as a waterproof layer; (e) cutting the waterproof layer along a center of the waterproof layer so as to be formed with two waterproof layers which are located at the two fastener strips; and thus a waterproof zipper being formed and (f) guiding the waterproof zipper out.

Claim 2. (original) The method of claim 1, wherein after step (c), further comprising a step (c1) of pressing the PU gel into the fastener strips by rollers.

Claim 3. (original) The method of claim 2, wherein the steps of (c) and (c1) are repeated through predetermined times.

Claim 4. (original) The method of claim 2, wherein after step (c1), a step (c2) is performed for drying the fastener strips.

Claim 5. (original) The method of claim 1, wherein after the step (d), a step (d1) is performed for compressing the PU film, PU gel and fastener strips from two sides thereof.

Claim 6. (original) The method of claim 1, wherein between step (b) and (c) further comprising a step (b1) of printing pattern on the PU film.

Claim 7. (original) The method of claim 1, between step (b) and (c) further comprising a step (b1) of forming textures on the PU film.

Claim 8. (original) The method of claim 1, wherein before step (c), the PU film is pressed at two sides.

Claim 9.(original) A method for manufacturing a waterproof zipper

comprising a step of: (a) feeding a nylon zipper to a feeding device; (b) passing the nylon zipper to a gluing device and coating PU gel on backsides of the fastener strips of the nylon zipper; (c) pressing the PU gel into the fastener strips by using capillary effect; (d) vaporizing solvent in the PU gel in a drying box; (e) adhering a PU film with PU gel on backsides of the fastener strips by using rollers to press the PU film so as to be formed as a waterproof layer; wherein the PU film is adhered on a release paper; (f) heating the PU film and PU gel to be formed as a waterproof layer; (g) cutting the waterproof layer along a center of the waterproof layer so as to be formed with two waterproof layers which are located at the two fastener strips; and thus a waterproof zipper being formed and (h) guiding the waterproof zipper out.

Claim 10. (original) The method of claim 9, wherein after heating step, further comprising a step of extruding the PU film, PU gel and fastener strips so as to firmly combine the PU film, PU gel and fastener strips.

Claim 11. (cancelled)

Claim [[12]] 11. (currently amended) The method of claim 9, wherein between steps (d) and (e) further comprising a step (d1) of printing patterns on the PU film.

Claim [[13]] 12. (currently amended) The method of claim 9, between steps (d) and (e) further comprising a step (d1) of forming textures on the PU film.

Claim [[14]] 13. (currently amended) The method of claim 9, between step (d) and (e), further comprising steps of: output the nylon zipper by a guide device; feeding a nylon zipper to a feeding device;

Claim [[15]] 14. (currently amended) The method of claim 14, wherein after heating step, further comprising a step of compressing the PU film, PU gel and fastener strips at two sides so as to firmly combine the PU film, PU gel and fastener strips.

Claim 16. (withdrawn) A nylon waterproof zipper comprising two symmetric fastener strips; each fastener strip has a front surface and a back surface; an inner side of the front surface of each fastener strip having a cord thread protruded from the surface; two chains being mounted along the cord threads, respectively; the cord threads being fixed to the fastener strips, respectively; the two chains being engaged by a coupling slider; a back surface of each fastener strip being combined with a thin waterproof layer; characterized in that: a back surface of each fastener strip is permeated with PU gel; and then a PU film is adhered to the back surface by thermal plastic stage so as to be formed as a waterproof layer which includes an inner layer of the PU gel permeating into the fastener strips and an outer layer at an outer side of the fastener strips.

Claim 17. (withdrawn) The nylon waterproof zipper as claimed in claim 1, wherein the waterproof layer is formed with textures.

Claim 18. (withdrawn) The nylon waterproof zipper as claimed in claim 1, wherein a thickness of the inner layer is over one third of each fastener strip.

Claim 19. (withdrawn) The nylon waterproof zipper as claimed in claim 1, wherein a thickness of the inner layer is over one half of each fastener strip.

Since in above discussion, it is apparent that the instant invention is elected Claim 1 to 15 for examination. Furthermore, as we know that may cite prior art has features of the present invention for comparing the novelty and inventive step of the present invention. It is now believed that the subject Patent Application has been placed in condition for substantial examination, and such action is respectively requested.

Respectfully submitted.

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